2011 Annual Summary

In the wake of a late December 2010 winter storm, temperatures dropped into the teens with sub-zero lows for New Years Day.

The cold snap lasted into the first few days of the new year, but eventually temperatures moderated back to near normal. Then a “pineapple express” weather pattern set up, with mild and moist air flowing into our region from the tropics near Hawaii. Daytime temperatures rose into the 40s and 50s, with night time readings staying above freezing for five days. The result was rain, melting snow, and flooding. Some rivers in the Idaho Panhandle exceeded flood stage for a few days. Although temperatures cooled, the snow didn’t return. In fact, the weather was rather dry for the last half of **January**. There were a couple of weak storms on the 21st and 24th that brought 3-6” of snow to the northern Panhandle and extreme northeast Washington. But in general, January turned out to be warmer and drier than normal. People started wondering where La Nina went.

Historically, the effects of La Nina in the Pacific Northwest are most notable in the latter half of winter and spring. But as January turned to **February**, the weather remained mild and rather snow-free. A couple of weak snowfall events during the first few days of the month were followed by a wind event on the morning of the 7th. Winds gusted to 52 mph in the Columbia Basin, with a 44 mph gust at Wenatchee Airport. A stronger wind storm occurred 5 days later. Gusts to 72 mph were reported in Beverly, Washington, with gusts to 52 mph at nearby Moses Lake and Ephrata. The weather pattern began to change in the middle of the month as storms started approaching the region from the northwest. The first storm on the 15th brought 7” of snow to near Moscow. Subsequent storms brought 3-6” of snow to the northeastern parts of the area, including 8.2” at Northport, WA on the 22nd. Bonners Ferry received an impressive 20.5” the following day, while the Spokane metro area picked up around a foot of snow, unusual for this late in the winter. Even more unusual was the Arctic air that invaded the area following the snow storm. Some of the coldest temperatures of the winter occurred on the last few days of February, breaking several daily records. Temperatures dropped below zero on the 25th and 26th. Bonners Ferry hit -14F, while nearby Priest Lake fell to -20F. The month finished with another strong snow storm. The Sandpoint area picked up about 15” of snow, while in the Cascades the town of Leavenworth received 17.5”.

The month of **March** started off in usual fashion, with some light amounts of snow in the lower elevations. Moscow received 8.5 inches of snow on the 3rd. But given the cold snap at the end of February, temperatures in the mid 30s to mid 40s seemed more spring-like. The weather warmed into the lower 50s before a strong cold front moved through the area on the evening of the 13th, blowing down some large trees near Pullman. In general, there weren't many strong storms in March. But there was rain just about every day. Lewiston had measurable rain (i.e. 0.01" or more) on 18 days, compared to an average of 11 days. And totals for the month were equally impressive, with most locations receiving well-above average rainfall for March. Five locations in the Cascades had their wettest March ever including Holden Village with 10" (old record 7.71"), Leavenworth with 7.13" (old record 5.68") and Mazama with 5.24" (old record 4.58"). Mudslides also closed Highway 2 west of Leavenworth.

The cold and wet weather persisted into **April**. The average high and low temperatures in Lewiston for April were almost identical to March. Storm after storm continued to roll through the area. None were exceptionally strong, just colder and more frequent than normal. Kellogg picked up an inch of snow on the 6th. On the following morning, the temperature in Pomeroy dropped to 19 degrees. On the 18th Spokane received 0.5" of snow in the morning and could only warm to a high of 43 degrees. A localized and somewhat freakish snow storm occurred on Mount Spokane on the 26th. More than 2 feet of snow fell in just a few hours, snapping and uprooting dozens of mature trees. The Greenbluff area also received 6 inches of snow.

Although slightly warmer, **May** really wasn't that much different from its preceding months. Wenatchee Airport picked up 0.61 inches of rain on the 14th, while Ephrata received 0.53", both records for the day. The rain and snow melt caused some flooding in the Cascades. On that same day, while heavy rains were falling in the Cascades and western Columbia Basin, warm air pushed into southeast Washington. Pullman hit a high of 81F, a record for the day. That warm spell was short-lived, as the cold rains moved eastward. Spokane only reached a high of 47 degrees on the 16th with rain for most of the day. Yet another wet storm system rolled through the area on the 26th. Priest River had a rainfall total of 1.51 inches while Omak received 0.74", both daily records. Small streams began to flood with the combined rain and snow melt. Chewelah Creek came out of its banks and eventually flooded Highway 395. In its wake, cold air moved into the

Inland Northwest. Ephrata set a record low temperature of only 35F on the 27th and Chief Joseph Dam dropped to 29F degrees.

June continued the cold Spring weather, compliments of La Nina. This was despite the fact that the sea surface temperatures in the equatorial Pacific had actually returned to normal (i.e. technically no longer a La Nina). But the atmospheric weather pattern was still very much La Nina like. While it wasn't the coldest June ever, it may have felt like it after being colder-than-normal for February through May. There were the usual warm and cool spells. But most of the warm spells weren't very impressive. Spokane didn't reach 80 degrees until June 22nd, making this the latest ever "first 80 degree day". The old mark of June 13th was set only back in 2002. A morning low of 39 degrees on the 9th at Spokane set a record for the day. But while the month was rather cool, it was somewhat lacking in precipitation, including thunderstorms. The first severe storms didn't occur until the 22nd. A thunderstorm in southeast Washington brought golf ball sized hail to Anatone. The main weather story for June was river flooding. The cool spring slowed the melting of the mountain snow pack. The warmer days of June eventually melted enough of the snow to cause river flooding. While most of the main stem rivers in our area exceeded flood stage at one point, the worst flooding was likely along the Pend Oreille River in northeast Washington.

July marked the sixth consecutive month of below-normal temperatures. In some ways, the weather was about a month behind. July's temperatures were more typical of what we see in June. There were numerous days where the temperatures remained in the 70s or even the upper 60s, while the hot days were few and far between. Spokane reached 90 or better only 3 times compared to an average of 9. Meanwhile Lewiston failed to reach 100 in July, the first time that's happened since the cool summer of 1995. Again, strong thunderstorms were lacking this month. Parts of Colville did have a hailstorm on the morning of the 22nd, with pea-sized hail accumulating 1 to 3 inches in depth, requiring snow plows to clear it from the roads.

By this point, folks were wondering if we'd have a summer at all this year. But **August** actually saw the arrival of more consistent summer-like weather. The first half of the month saw consistently near-normal temperatures with plenty of sunshine. The latter half of August saw the first extended hot spell of the year. Lewiston reached the century mark 3 days

in a row while most other locations were in the 90s. Very weak weather systems brought very little if any rain. Wenatchee didn't even measure a trace of rain the entire month. If it wasn't for a cool and wet system on the last day of the month, Spokane would have had a dry August as well. Even with that rainfall, conditions in the Inland Northwest remained very dry. The lack of thunderstorms kept the wildfire season very quiet. But until the Fall rains arrived, the threat of wildfires would remain. Early September was looking like it may have the hottest temperatures of the entire summer.

The weather in the Inland Northwest continued to be about a month behind schedule. For the spring and early summer, this meant colder than usual (e.g. May felt more like April). But for the latter half of the year, it meant the opposite (e.g. September felt more like August). Mild and dry weather was the rule for this autumn. August had ended the string of colder-than-normal months, and **September** continued this trend. Average temperatures were nearly 5 degrees above normal for the month. Temperatures from the 7th through the 14th were in the upper 80s and 90s, which is 10-15 degrees above normal for that time of year. Numerous daily records were broken at a number of locations. After a mid-month short cool spell brought very light rainfall, temperatures once again rebounded back into the 80s and 90s. Lewiston and La Crosse both hit 100 degrees on the 24th, the latest ever that they have hit the century mark. Lewiston averages four days of 90 or better in September. They reached that mark 13 times this year, which hadn't been done since 1943. Thunderstorms on the 27th brought the only appreciable rain for the month. Some of these were rather heavy. A weather spotter near Diamond Lake received 0.42" of rain in 20 minutes.

October saw the typical increase in storm activity. Rain fell on most of the first 11 days of the month. Rainfall along with some thunderstorms kept the temperatures on the cool side. The high in Spokane on the 6th only reached 48 degrees, the first sub-50 day of the season. Kellogg received 0.67" of rain on the 5th, a record for the day. A tornado touched down near St. John on the Palouse. By the middle of the month, the weather pattern had turned drier with temperatures warming back into the 60s. This culminated on the 22nd as a cold front moved through the area. Rare late-season thunderstorms developed during the evening bringing small hail to some locations.

The nice autumn weather continued into **November**. But on the 12th the weather pattern took a turn for the colder. Several locations received their

first appreciable snow, including Deary which picked up 4.3”. Winds accompanying this storm front gusted into the 40-50mph range. While most of the quickly melted, another front on the 16th brought more widespread snow. The heaviest snow was in the Cascade valleys where Mazama had 9.4” and Leavenworth and Winthrop received 6.5”. Generally lighter amounts fell across the northern valleys, although Naples picked up 7”. More snow fell north of Spokane on the 17th and 18th. The area between Newport and Clark Fork received 6-14” of snow. Yet another storm moved into the area on the 23rd. Precipitation initially started as snow with the valleys north of Spokane picking up another 2-7”. But this storm brought strong winds are temperatures into the 40s and 50s, melting much of the snow that had fallen over the past week. The exception to this was in the Cascades where the precipitation continued to fall as snow. Snowfall of 1-2 feet was reported in Stehekin and Mazama, with about 6” in Leavenworth. The month finished up with generally mild weather as temperatures ran 5 to 10 degrees above average for the end of November.

December in the Inland Northwest often proves to be a month with several winter storms and rounds of snow for the area. This December however was quite different for the first three weeks. A very strong ridge in the Eastern Pacific Ocean deflected systems north and east of the area bringing abnormally dry conditions. Wenatchee and Moses Lake through the 21st of the month had yet to record any measurable precipitation. While in Spokane, Pullman, and Omak less than a tenth of an inch of liquid precipitation had fallen. What was more common for many valley locations was low clouds and fog. In Spokane and Wenatchee, every day from the 8th through the 20th had an observation of low clouds or fog. With temperatures below freezing most of this period a buildup of riming was observed on power lines and surfaces.

The weather pattern changed during the last week of December. A warmer and wet pacific jet stream took aim at the Inland Northwest with several systems passing through the area. This brought warmer temperatures with readings as much as 10 to 20 degrees above normal. This resulted in mainly rain in the valleys with a mix of rain and snow in the mountains.

Site: Wenatchee, WA (Water Plant)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
Average High Temp	37.2	41.5	50.2	58.1	67.7	75.7	82.7	89.2	82.1	62.5	45.9	37.4	60.9
Dep from Normal	+2.1	-1.3	-4.7	-6.5	-5.4	-4.1	-5.5	+1.6	+3.8	-1.0	-0.6	+1.7	-1.6

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
Average Low Temp	25.2	24.9	32.5	36.8	45.6	53.4	57.4	61.5	53.4	42.1	28.9	24.5	40.5
Dep from Normal	+2.0	-2.5	-1.4	-4.0	-3.0	-2.2	-4.1	+1.0	+1.7	+0.9	-3.3	-0.7	-1.3

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Precipitation	0.88	0.30	2.13	0.02	1.94	0.58	0.40	0.00	0.02	0.75	0.49	0.53	8.04
Dep from Normal	-.47	-.64	+1.49	-.49	+1.43	-.11	+.10	-.41	-.38	+.26	-.87	-.99	-1.08

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Snowfall	6.0	3.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	0.1	16.5
Dep from Normal	-3.3	-0.8	-0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-10.5	-15.1

Site: Lewiston, ID

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
Average High Temp	42.9	42.3	53.7	54.8	65.6	73.9	85.6	91.3	85.4	62.0	48.5	40.3	62.2
Dep from Normal	+3.5	-3.3	-0.1	-6.8	-4.3	-4.6	-3.7	+2.5	+7.2	-0.6	+0.3	+0.8	-0.8

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
Average Low Temp	30.7	27.9	36.1	36.6	44.7	51.9	56.1	59.9	53.5	44.5	32.3	26.3	41.7
Dep from Normal	+2.8	-3.3	+0.5	-4.0	-2.2	-1.5	-3.5	+0.7	+2.6	+3.4	-0.7	-1.7	-0.6

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Precipitation	1.10	1.97	1.71	1.60	3.57	0.64	0.15	0.05	0.14	1.00	0.93	0.21	13.07
Dep from Normal	-.04	+1.02	+.59	+.29	+2.01	-.52	-.57	-.70	-.53	+.04	-.25	-.76	+0.58

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Snowfall	0.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5	2.0
Dep from Normal	-5.6	-2.2	-0.7	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-3.0	-11.6

Site: Spokane, WA

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
Average High Temp	35.4	36.1	46.2	50.4	62.3	69.6	79.7	84.6	79.1	56.7	42.7	34.0	56.4
Dep from Normal	+2.6	-3.2	-2.4	-7.1	-2.9	-4.2	-3.6	+1.7	+6.2	-1.2	-0.5	+1.8	-1.1

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
Average Low Temp	22.9	21.6	32.3	32.7	41.8	48.5	53.6	56.9	50.9	39.4	27.4	23.2	37.6
Dep from Normal	+1.2	-4.1	+1.9	-2.8	-0.8	-1.9	-2.7	+1.1	+3.5	+2.2	-3.6	+0.7	-0.4

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Precipitation	2.43	1.14	3.25	1.81	1.83	0.57	0.53	0.23	0.14	0.73	1.73	1.01	15.40
Dep from Normal	+.61	-.37	+1.72	+.53	+.23	-.61	-.23	-.45	-.53	-.45	-.57	-1.29	-1.41

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Snowfall	7.1	8.5	3.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	6.6	2.4	29.0
Dep from Normal	-7.1	+1.8	-0.3	+0.2	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	-12.2	-17.8